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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,565	10/20/2003	Paul Underbrink	ST02010USU (246-US-U1)	8409
7590 Jennifer Hammond The Eclipse Group 10453 Raintree Lane Northridge, CA 91326			EXAMINER TU, JULIA P	
			ART UNIT 2611	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/29/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/689,565

Applicant(s)

UNDERBRINK ET AL.

Examiner

Julia P. Tu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 9 is objected to because of the following informalities: the radio receiver apparatus of claim 9 should be changed to the radio receiver apparatus of claim 17 since claim 9 is a method claim and claim 17 is an apparatus claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1, 5, 6, 9, 13, 14, 17, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Norman et al. (US 6,282,231).

(1) with regard to claim 1:

As shown in figure 1, Norman et al. disclose a radio receiver apparatus in receipt of a spread spectrum radio signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-32), comprising:

a demodulator (see column 4, lines 51- column 5, lines 1-2) that demodulates a first signal in the spread spectrum radio signal into the first signal tracking channel and a second signal in the spread spectrum radio signal into the second signal tracking channel;

a crosscorrelator (block 40 in figure 1) connected to the first tracking channel and the second tracking channel;

a signal processor (blocks 40 and 50 in figure 1) that identify a carrier wave jamming signal with the crosscorrelator;

a tracker (block 50 in figure 1) that tracks the carrier wave jamming signal; and

a signal canceller (block 60 in figure 1) subtracts the carrier wave jamming signal from the spread spectrum signal.

(2) with regard to claim 9:

As shown in figure 1, Norman et al. disclose a method of removing a carrier wave jamming signal from a spread spectrum signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-33), comprising:

demodulating a first signal in the spread spectrum radio signal into the first signal tracking channel and a second signal in the spread spectrum radio signal into the second signal tracking channel (see column 4, lines 51- column 5, lines 1-2);

correlating the first tracking channel and the second tracking channel with a crosscorrelator (block 40 in figure 1);

computating a product of the first signal tracking channel and the second signal tracking channel to obtain a carrier wave jamming signal (blocks 40 and 50 in figure 1);

tracking the carrier wave jamming signal (block 50 in figure 1); and

canceling the carrier wave jamming signal from the spread spectrum signal (block 60 in figure 1).

(3) with regard to claim 17:

As shown in figure 1, Norman et al. disclose a receiver in receipt of a spread spectrum radio signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-33), comprising:

demodulation means (see column 4, lines 51- column 5, lines 1-2) for demodulating a first signal in the spread spectrum radio signal into the first signal tracking channel and a second signal in the spread spectrum radio signal into the second signal tracking channel;

correlation means for correlating the first tracking channel and the second tracking channel (block 40 in figure 1);

computation means for computing a product of the first signal tracking channel and the second signal tracking channel to obtain a carrier wave jamming signal (blocks 40 and 50 in figure 1);

means for tracking the carrier wave jamming signal (block 50 in figure 1); and

canceling means that cancels the carrier wave jamming signal from the spread spectrum signal (block 60 in figure 1).

(4) with regard to claims 5, 13, 21:

Norman et al. further teach the crosscorrelator has a code of all ones for a pseudo random number (PRN) code (column 7, lines 51-53).

(5) with regard to claims 6, 14, 22:

Norman et al. further teach the spread spectrum radio signal is a position signal (column 7, lines 10-13).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4, 10-12, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al. (US 6,282,231) in view of Heinzl et al. (US 2002/0012411).

(1) with regard to claims 2, 10, 18:

Norman et al. disclose all of the subject matters in claim 1 above except for a signal generator that generates a replica carrier wave jamming signal having a phase from the carrier wave jamming signal having another phase and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal.

However, Heinzl et al. teach a signal generator that generates a replica carrier wave jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal (page 1, paragraph [0011]).

It is desirable to include a signal generator that generates a replica carrier wave jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal to enable GPS and other RF navigation receivers to be structured flexibly to improve anti-jamming capability.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a signal generator that generates a replica carrier wave

jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal to provide improved resistance to jamming signals.

(2) with regard to claims 3, 11, 19:

Heinzi et al. further teach a signal rotator that rotates the phase of the replica carrier wave jamming signal (page 3, paragraphs [0041] and [0042]).

(3) with regard to claims 4, 12, 20:

Heinzi et al. further teach the signal rotator adjusts the phase of the replica carrier wave jamming signal to match the other phase of the carrier wave jamming signal in the spread spectrum signal (page 3, paragraphs [0041] and [0042]).

6. Claims 7, 8, 15, 16, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al. (US 6,282,231) in view of Van Stralen et al. (US 6,621,855).

(1) with regard to claims 7, 15, 23:

Norma et al. disclose all of the subject matter in claim 1 above except for crosscorrelator is at least a 1024 bit wide correlator.

However, Van Stralen et al. disclose crosscorrelator is at least a 1024 bit wide correlator (column 3, lines 45-50).

It is desirable to have a crosscorrelator is at least a 1024 bit wide correlator to improve the reliability of the detection of timing and frequency estimates especially

when the signals are weak (column 11, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a crosscorrelator is at least a 1024 bit wide correlator as taught by Van Stralen et al. in the system as taught by Norman et al. to improve the reliability of the detection of timing and frequency estimates (column 11, lines 47-50).

(2) with regard to claims 8, 16, 24:

Van Stralen et al. further teach the crosscorrelator includes an at least a 1024 bit wide match filter (column 3, lines 45-65).

It is desirable to have the crosscorrelator further includes an at least a 1024 bit wide match filter to improve the reliability of the detection of timing and frequency estimates especially when the signals are weak (column 11, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the crosscorrelator includes an at least a 1024 bit wide match filter as taught by Van Stralen et al. in the system as taught by Norman et al. to improve the reliability of the detection of timing and frequency estimates (column 11, lines 47-50).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julia P. Tu whose telephone number is 571-270-1087. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.T.
12-20-2006


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER